

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

Claims 1. – 15. (Canceled)

16. (Currently Amended) A photoacoustic detector, comprising at least

- a first chamber suppliable with a gas to be analyzed,

- a window for letting modulated and/or pulsed infrared radiation and/or light in

the first chamber, and

- means for detecting pressure variations created in the first chamber by absorbed infrared radiation and/or light, wherein the means for detecting pressure variations created in the first chamber by absorbed infrared radiation and/or light comprise at least

- an aperture in communication with the first chamber

- a door adapted to be movable in response to the movement of a gas, the door being positioned in the aperture and at least on one side mounted so that an inner periphery of the aperture surrounds the door and a slit exists between the door and the inner periphery of the aperture, and

- means for a contactless measurement of the door movement.

17. (Previously Presented) A photoacoustic detector as set forth in claim 16, wherein the door has a surface area which is at most equal to the area of the aperture provided in the first chamber.

18. (Canceled)

19. (Previously Presented) A photoacoustic detector as set forth in claim 16, wherein the door is fabricated from silicon.

20. (Previously Presented) A photoacoustic detector as set forth in claim 16, wherein the means for a contactless measurement of the door movement comprise an optical measuring system, comprising at least one or more light sources for illuminating the door or a part thereof and one or more detectors for receiving light reflected from the door and for measuring the door movement as optical angular and/or translatory measurement.

21. (Previously Presented) A photoacoustic detector as set forth in claim 20, wherein the light source of the measuring system comprises a laser.

22. (Previously Presented) A photoacoustic detector as set forth in claim 20, wherein the detector of the measuring system comprises a double sensor.

23. (Previously Presented) A photoacoustic detector as set forth in claim 20, wherein the light source and the detector are designed as a part of an interferometer.

24. (Previously Presented) A photoacoustic detector as set forth in claim 16, wherein the means for a contactless measurement of the door movement comprise a capacitive measuring system, whereby the door or a part thereof is coated with a metal or the door is fabricated from an electrically highly conductive material, and said measuring system comprising a metal film or a metal-coated diaphragm set in the proximity of the door, as well as means for measuring the capacitance variations of a capacitor established by the door and the metal film.

25. (Previously Presented) A photoacoustic detector as set forth in claim 20, wherein the means of a contactless measurement of the door movement are provided in a second chamber, which constitutes a measuring space with a volume and which is in communication with the first chamber by way of the first chamber's aperture.

26. (Previously Presented) A photoacoustic detector as set forth in claim 25, wherein communication with the second chamber is further provided a third chamber which is identical to the first chamber in terms of size and has an aperture which is identical to that included in the first chamber and connects the third chamber with the second chamber, said aperture of the third chamber being closed with a door similar to that closing the aperture of the first chamber, the movement of said door being measured in a manner similar to that used for measuring the movement of the door closing the first chamber aperture, as well as means for calculating the amplitudes of an actual measuring signal measured from the sensor arranged in the first chamber

aperture and a reference signal measured from the sensor arranged in the third chamber aperture, and for working out a difference therebetween.

27. (Previously Presented) A sensor for a photoacoustic detector, wherein the sensor comprises a panel-like skirt element serving as a door frame, and a door separated from the panel-like skirt element by a gap, the door being on only one side mounted on structure of the door frame encircling side faces of the door.

28. (Previously Presented) A sensor as set forth in claim 27, wherein the sensor is arrangeable in communication with a chamber included in a photoacoustic detector and containing a gas to be analyzed, such that the door is moved by pressure variations created in the chamber by absorbed infrared radiation and/or light.

29. (Canceled)